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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,288	12/28/2001	Jimmy A. Tatum	V637-02312 US	2960

7590 11/24/2003  
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EXAMINER

LOUIE, WAI SING

ART UNIT PAPER NUMBER

2814

DATE MAILED: 11/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/028,288

Applicant(s)

TATUM ET AL.

Examiner

Wai-Sing Louie

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chun et al. (US 5,625,732) in view of Okazaki et al. (US 5,298,768).

With regard to claim 1, Chun et al. disclose an optical interface unit (col. 2, line 18 to col. 9, line 50 and fig. 3) comprising:

- A submount 201 having a plurality of conductive traces 213 on the surface and a plurality of conductive vias 221 and 226 that pass through a body of the submount 201 (fig. 2);
- A plurality of bonding wires 144 electrically connecting the first electrical contacts 131 and 134 of the semiconductor elements 107 and 116 (fig. 1);
- A semiconductor array 121 having a top portion and a bottom portion (fig. 1), the semiconductor array 121 being comprised of semiconductor elements 107, 116, and 124 having first electrical contacts 113 on the top portion (fig. 1), but do not disclose the second electrical contacts on the bottom portion. However, Okazaki et al. disclose a bottom contact in the device (Okazaki col. 4, lines 31-32 and fig.

6). Okazaki et al. teach that this arrangement would reduce manufacturing costs (col. 2, lines 1-2). Therefore, it would have been obvious for the one with ordinary skill in the art to modify Chun's device with the teaching of Okazaki et al. to provide a bottom electrode for connecting the LED in order to reduce manufacturing costs. The semiconductor array 121 is attached to the submount 102 such that the second electrical contacts of the semiconductor elements 107, 116, and 124 are electrically connected to the submount 102 via conductive contact 104 (fig. 1 and 2).

With regard to claims 2 and 14, Chun et al. disclose the semiconductor array 121 includes a plurality of vertical cavity surface emitting laser, VCSEL (col. 3, lines 1-10).

With regard to claims 3 and 15, Chun et al. disclose the semiconductor array 121 includes a plurality of detector (col. 2, lines 57-67).

With regard to claims 4 and 22, Chun et al. disclose the submount 102 includes a mounting well 139, where the semiconductor array 121 is in the mounting well 139, and where the semiconductor array 121 includes a top surface 138 that does not protrude from the mounting well 139 (fig. 1).

With regard to claims 5-6, 11, and 16, Chun et al. disclose each of the conductive traces and connectors 141, 142, and 144 includes a plurality of contact pads 104 and 106 (fig. 1).

With regard to claims 7-8 and 18-19, Chun et al. disclose an optical coupler 302 on the locating spacer 313 that extends from the submount 301, where the optical coupler 302 is aligned with the semiconductor array 121 (fig. 1 and 3).

With regard to claims 9 and 20, Chun et al. disclose the submount 102 and 202 includes ceramic (col. 2, lines 40-41 and col. 5, line 49).

With regard to claim 10, Chun et al. disclose at least one of the plurality of conductive vias 211 electrically connects to one of the conductive traces 203 (fig. 2).

With regard to claim 12, Chun et al. disclose a printed circuit board, PCB, 102 electrically connected to the conductive pad 104 (col. 2, lines 39-45 and fig. 1).

With regard to claim 13, in addition to the limitations disclosed in claim 1 above, Chun et al. also disclose:

- A submount 202 comprised a lower portion (fig. 2), a conductive trace 213 on the lower portion, an upper portion over the lower portion, and a plurality of conductive traces 223 on the upper portion, where the lower portion and the conductive trace on the lower portion extend beyond the upper portion (to reach the IC chip 207 and 208) to define a mounting surface of submount 202;

With regard to claims 17 and 21, Chun et al. disclose a bonding connector 134 electrically connected to the contact pad 104 (fig. 1) and a PCB 102 electrically connected to the conductive pad 104 (col. 2, lines 39-45 and fig. 1).

### ***Response to Arguments***

Applicant's arguments filed 8/11/03 have been fully considered:

- Applicant has amended the claims to have top and bottom electrical connections, which does not teach in reference Chun et al. However, Okazaki et al. teach a

LED array having top and bottom connections. Therefore, the combination of Chun and Okazaki would meet the amended limitation. Please see the above office action.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wai-Sing Louie whose telephone number is (703) 305-0474. The examiner can normally be reached on 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (703) 308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

wsf  
November 7, 2003



Wael Fahmy  
Supervisor